

WHAT IS CLAIMED IS:

1. An image forming apparatus comprising:

a first image carrying body that carries a first electrostatic latent image;

5 a first developing device that develops the first electrostatic latent image formed on the first image carrying body into a first toner image, and removes excess toner on the first image carrying body;

10 a second image carrying body that carries a second electrostatic latent image;

a second developing device that develops the second electrostatic latent image formed on the second image carrying body into a second toner image, and removes excess toner on the second image carrying body;

15 a third image carrying body that carries a third electrostatic latent image; and

a third developing device that develops the third electrostatic latent image formed on the third image carrying body into a third toner image, and removes
20 excess toner on the third image carrying body,

wherein the third developing device performs a toner discharge operation on the basis of a result of a comparison between one of an integrated area of the first toner image and an integrated area of the second
25 toner image, on the one hand, and an integrated area of the third toner image, on the other.

2. The image forming apparatus according to

claim 1, wherein the image forming apparatus further comprises:

a fourth image carrying body that carries a fourth electrostatic latent image; and

5 a fourth developing device that develops the fourth electrostatic latent image formed on the fourth image carrying body into a fourth toner image, and removes excess toner on the fourth image carrying body,

wherein the fourth developing device performs
10 a toner discharge operation on the basis of a result of a comparison between one of an integrated area of the first toner image, an integrated area of the second toner image and an integrated area of the third toner image, on the one hand, and an integrated area of the
15 fourth toner image, on the other.

3. The image forming apparatus according to claim 1, wherein the toner discharge operation of the third developing device is performed when a value, which is obtained by subtracting the integrated area of
20 the third toner image from the integrated area of the first toner image, or a value, which is obtained by subtracting the integrated area of the third toner image from the integrated area of the second toner image, exceeds a predetermined value.

25 4. The image forming apparatus according to claim 2, wherein the toner discharge operation of the fourth developing device is performed when a value

which is obtained by subtracting the integrated area of the fourth toner image from the integrated area of the first toner image, a value which is obtained by subtracting the integrated area of the fourth toner image from the integrated area of the second toner image, or a value which is obtained by subtracting the integrated area of the fourth toner image from the integrated area of the third toner image, exceeds a predetermined value.

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10 5. The image forming apparatus according to claim 1, wherein the toner discharge operation of the third developing device is performed when a value, which is obtained by subtracting the integrated area of the third toner image from a sum of the integrated area of the first toner image and the integrated area of the second toner image, exceeds a predetermined value.

15 6. The image forming apparatus according to claim 2, wherein the toner discharge operation of the fourth developing device is performed when a value which is obtained by subtracting the integrated area of the fourth toner image from a sum of the integrated area of the first toner image, the integrated area of the second toner image and the integrated area of the third toner image, exceeds a predetermined value.

20 7. The image forming apparatus according to claim 1, wherein the toner discharge operation of the third developing device is performed when a value,

which is obtained by subtracting an overlapping integrated area of the first and second toner images and the integrated area of the third toner image from a sum of the integrated area of the first toner image and the integrated area of the second toner image, exceeds a predetermined value.

8. The image forming apparatus according to claim 2, wherein the toner discharge operation of the fourth developing device is performed when a value which is obtained by subtracting a sum of an overlapping integrated area of two or three of the first, second and third toner images and the integrated area of the fourth toner image, from a sum of the integrated area of the first toner image, the integrated area of the second toner image and the integrated area of the third toner image, exceeds a predetermined value.

9. The image forming apparatus according to claim 1, wherein the toner discharge operation of the third developing device is performed when a value, which is obtained by subtracting the integrated area of the third toner image from an integrated area of a composite toner image of the first and second toner images, exceeds a predetermined value.

10. The image forming apparatus according to claim 2, wherein the toner discharge operation of the fourth developing device is performed when a value,

which is obtained by subtracting the integrated area of the fourth toner image from an integrated area of a composite toner image of the first, second and third toner images, exceeds a predetermined value.

5 11. An image forming apparatus having a first developing device that performs development using a first toner, a second developing device that performs development using a second toner, a third developing device that performs development using a third toner
10 and a fourth developing device that performs development using a fourth toner, wherein a toner image using the first toner is first formed on paper supplied, following which a toner image using the second toner is formed in an overlapping manner, a toner image using
15 the third toner is formed in an overlapping manner and then a toner image using the fourth toner is formed in an overlapping manner, the apparatus comprising:

 a first control section that controls a discharge operation for the first toner mixed in the second
20 developing device, in accordance with an integrated area developed by the first developing device and an integrated area developed by the second developing device;

 a second control section that controls a discharge
25 operation for the first and second toners mixed in the third developing device, in accordance with an integrated area developed by the first developing

device, an integrated area developed by the second developing device and an integrated area developed by the third developing device; and

5 a third control section that controls a discharge operation for the first, second and third toners mixed in the fourth developing device, in accordance with an integrated area developed by the first developing device, an integrated area developed by the second developing device, an integrated area developed by the third developing device and an integrated area developed by the fourth developing device.

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12. A mixed toner discharge control method for an image forming apparatus having a first developing device that performs development using a first toner, a second developing device that performs development using a second toner, a third developing device that performs development using a third toner and a fourth developing device that performs development using a fourth toner, wherein a toner image using the first toner is first formed on paper supplied, following which a toner image using the second toner is formed in an overlapping manner, a toner image using the third toner is formed in an overlapping manner and then a toner image using the fourth toner is formed in an overlapping manner, the method comprising:

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controlling a discharge operation for the first toner mixed in the second developing device, in

accordance with an integrated area developed by the first developing device and an integrated area developed by the second developing device;

5 controlling a discharge operation for the first and second toners mixed in the third developing device, in accordance with an integrated area developed by the first developing device, an integrated area developed by the second developing device and an integrated area developed by the third developing device; and

10 controlling a discharge operation for the first, second and third toners mixed in the fourth developing device, in accordance with an integrated area developed by the first developing device, an integrated area developed by the second developing device, an
15 integrated area developed by the third developing device and an integrated area developed by the fourth developing device.